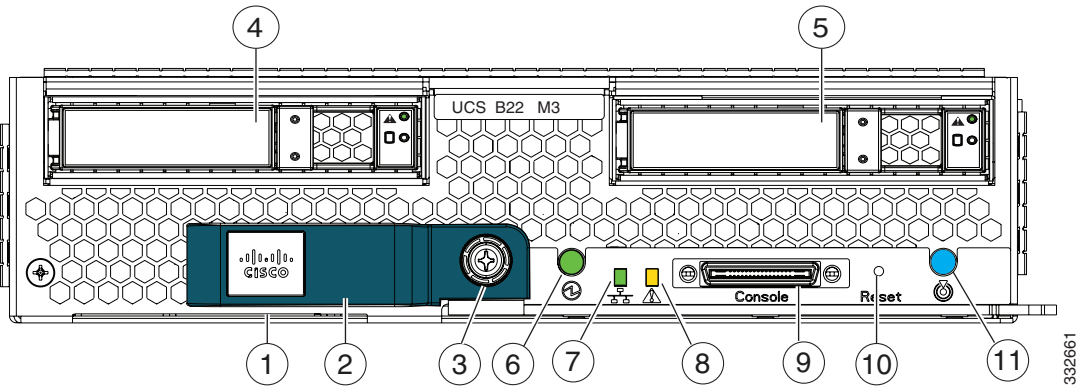




Cisco UCS B22 Blade Server Installation and Service Note

The UCS B22 M3 blade server (shown in [Figure 1](#)) is a half-width blade with 12 DIMM slots; it supports one dedicated slot for Cisco's Virtual Interface Card (VIC) 1240, and one open adapter slot. You may install up to eight UCS B22 Blade Servers to a UCS chassis, or mix with other UCS blade servers. The Cisco UCS B22 M3 Blade Server delivers a balanced price/performance feature set to address quick deployment of scalable IT infrastructure and Web 2.0 applications. Building on the success of the Cisco UCS B-Series Blade Servers, the Cisco UCS B22 M3 Server further extends the capabilities of Cisco's Unified Computing System portfolio in a half-width form factor. The Cisco UCS B22 M3 harnesses the power of the latest Intel® Xeon® processor E5-2400 product family with expandability to 192 GB of RAM (using 12 x 16 GB DIMMs), 2 hot-plug drives, and 2 PCIe adapter slots for up to 80 Gigabit Ethernet throughput.

Figure 1 Cisco UCS B22 Front Panel



1	Asset tag ¹	7	Network link status LED
2	Blade ejector handle	8	Blade health LED
3	Ejector captive screw	9	Console connector

4	Hard drive bay 1	10	Reset button access
5	Hard drive bay 2	11	Beaconing LED and button
6	Power button and LED		







- Each server has a blank plastic asset tag that pulls out of the front panel, provided so you can add your own asset tracking label without interfering with the intended air flow.

LEDs

The LED indicators indicate whether the blade server is in active or standby mode, the status of the network link, the overall health of the blade server, and whether the server is set to give a flashing blue beaconing indication. See [Table 1](#) for details.

The removable hard disks also have LEDs indicating hard disk access activity and hard disk health.

Table 1 Blade Server LEDs

LED	Color	Description
 Power	Off	Power off.
	Green	Normal operation.
	Amber	Standby.
 Link	Off	None of the network links are up.
	Green	At least one network link is up.
 Health	Off	Power off.
	Green	Normal operation.
	Amber	Minor error.
	Blinking Amber	Critical error.
 Beaconing	Off	Beaconing not enabled.
	Blinking blue 1 Hz	Beaconing to locate a selected blade—If the LED is not blinking, the blade is not selected. You can initiate beaconing in UCS Manager or with the button.
 Activity (Disk Drive)	Off	Inactive.
	Green	Outstanding I/O to disk drive.
 Health (Disk Drive)	Off	No fault.
	Amber	Some fault. ¹

- This reading may not be reliable if the drive is part of a damaged RAID array, or if the BIOS fails to complete POST.

Buttons

The Reset button is just inside the chassis and must be pressed using the tip of a paper clip or a similar item. Hold the button down for five seconds and then release it to restart the server if other methods of restarting are not working.

The beaconing function for an individual server may get turned on or off by pressing the combination button and LED. See [Table 1](#) for details.

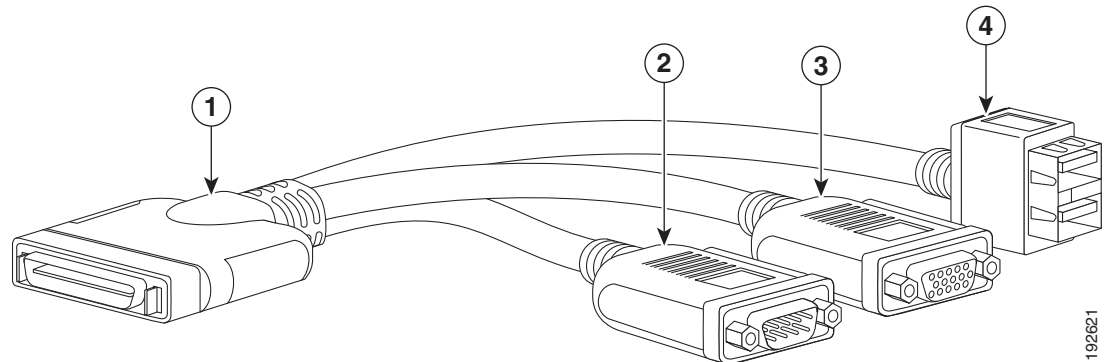
The power button and LED allows you to manually take a server temporarily out of service but leave it in a state where it can be restarted quickly. If the desired power state for a service profile associated with a blade server or an integrated rack-mount server is set to "off", using the power button or Cisco UCS Manager to reset the server will cause the desired power state of the server to become out of sync with the actual power state and the server may unexpected shutdown at a later time. To safely reboot a server from a power-down state, use the Boot Server action in Cisco UCS Manager.

Connectors

A console port is provided to give a direct connection to a blade server to allow operating system installation and other management tasks to be done directly rather than remotely. The port uses the KVM dongle device included in the chassis accessory kit.

The KVM cable (N20-BKVM shown in Figure 2) provides a connection into a Cisco UCS blade server, providing a DB9 serial connector, a VGA connector for a monitor, and dual USB ports for a keyboard and mouse. With this cable you can create a direct connection to the operating system and the BIOS running on a blade server.

Figure 2 KVM Cable for Blade Servers



1	Connector to blade server slot	2	DB9 serial connector
3	VGA connection for a monitor	4	2-port USB connector for a mouse and keyboard

Conventions

This document uses the following conventions for notes, cautions, and safety warnings.

Notes and Cautions contain important information that you should know.



Note

Means *reader take note*. Notes contain helpful suggestions or references to material that are not covered in the publication.



Caution

Means *reader be careful*. You are capable of doing something that might result in equipment damage or loss of data.

Safety warnings appear throughout this publication in procedures that, if performed incorrectly, can cause physical injuries. A warning symbol precedes each warning statement.



Warning

IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

Waarschuwing

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkomen. Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschuwing die bij het apparaat wordt geleverd, wilt raadplegen.

BEWAAR DEZE INSTRUCTIES

Varoitus

TÄRKEITÄ TURVALLISUUSOHJEITA

Tämä varoitusmerkki merkitsee vaaraa. Tilanne voi aiheuttaa ruumiillisia vammoja. Ennen kuin käsittelet laitteistoa, huomioi sähköpiirien käsittelemiseen liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytapoihin. Turvallisuusvaroitusten käännökset löytyvät laitteen mukana toimitettujen käännettyjen turvallisuusvaroitusten joukosta varoitusten lopussa näkyvien lausuntonumeroiden avulla.

SÄILYTÄ NÄMÄ OHJEET

Attention

IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS

Warnung

WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

Avvertenza IMPORTANTI ISTRUZIONI SULLA SICUREZZA

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in questo documento.

CONSERVARE QUESTE ISTRUZIONI

Advarsel VIKTIGE SIKKERHETSINSTRUKSJONER

Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.

TA VARE PÅ DISSE INSTRUKSJONENE

Aviso INSTRUÇÕES IMPORTANTES DE SEGURANÇA

Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.

GUARDE ESTAS INSTRUÇÕES

¡Advertencia! INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES

Varning! VIKTIGA SÄKERHETSANVISNINGAR

Denna varningssignal signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanliga förfaranden för att förebygga olyckor. Använd det nummer som finns i slutet av varje varning för att hitta dess översättning i de översatta säkerhetsvarningar som medföljer denna anordning.

SPARA DESSA ANVISNINGAR

FONTOS BIZTONSÁGI ELOÍRÁSOK

Ez a figyelmeztető jel veszélyre utal. Sérülésveszélyt rejtő helyzetben van. Mielott bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplő figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján kereshető meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!

Предупреждение

ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБЛЮДЕНИЮ ТЕХНИКИ БЕЗОПАСНОСТИ

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ

警告

重要的安全性说明

此警告符号代表危险。您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾提供的声明号码来找到此设备的安全性警告说明的翻译文本。

请保存这些安全性说明

警告

安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電気回路の危険性に注意し、一般的な事故防止策に留意してください。警告の各国語版は、各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。

주의

중요 안전 지침

이 경고 기호는 위험을 나타냅니다. 작업자가 신체 부상을 일으킬 수 있는 위험한 환경에 있습니다. 장비에 작업을 수행하기 전에 전기 회로와 관련된 위험을 숙지하고 표준 작업 관례를 숙지하여 사고를 방지하십시오. 각 경고의 마지막 부분에 있는 경고문 번호를 참조하여 이 장치와 함께 제공되는 번역된 안전 경고문에서 해당 번역문을 찾으십시오.

이 지시 사항을 보관하십시오.

Aviso INSTRUÇÕES IMPORTANTES DE SEGURANÇA

Este símbolo de aviso significa perigo. Você se encontra em uma situação em que há risco de lesões corporais. Antes de trabalhar com qualquer equipamento, esteja ciente dos riscos que envolvem os circuitos elétricos e familiarize-se com as práticas padrão de prevenção de acidentes. Use o número da declaração fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham o dispositivo.

GUARDE ESTAS INSTRUÇÕES

Advarsel VIGTIGE SIKKERHEDSANVISNINGER

Dette advarselssymbol betyder fare. Du befinder dig i en situation med risiko for legemesbeskadigelse. Før du begynder arbejde på udstyr, skal du være opmærksom på de involverede risici, der er ved elektriske kredsløb, og du skal sætte dig ind i standardprocedurer til undgåelse af ulykker. Brug erklæringsnummeret efter hver advarsel for at finde oversættelsen i de oversatte advarsler, der fulgte med denne enhed.

GEM DISSE ANVISNINGER

تحذير

إرشادات الأمان الهامة

يوضح رمز التحذير هذا وجود خطر. وهذا يعني أنك متواجد في مكان قد ينتج عنه التعرض للإصابات. قبل بدء العمل، احذر مخاطر التعرض للصدمات الكهربائية وكن على علم بالإجراءات القياسية للحيلولة دون وقوع أي حوادث. استخدم رقم البيان الموجود في آخر كل تحذير لتحديد مكان ترجمته داخل تحذيرات الأمان المترجمة التي تأتي مع الجهاز. قم بحفظ هذه الإرشادات

Upozorenje VAŽNE SIGURNOSNE NAPOMENE

Ovaj simbol upozorenja predstavlja opasnost. Nalazite se u situaciji koja može prouzročiti tjelesne ozljede. Prije rada s bilo kojim uređajem, morate razumjeti opasnosti vezane uz električne sklopove, te biti upoznati sa standardnim načinima izbjegavanja nesreća. U prevedenim sigurnosnim upozorenjima, priloženima uz uređaj, možete prema broju koji se nalazi uz pojedino upozorenje pronaći i njegov prijevod.

SAČUVAJTE OVE UPUTE

Upozornění DŮLEŽITÉ BEZPEČNOSTNÍ POKYNY

Tento upozorňující symbol označuje nebezpečí. Jste v situaci, která by mohla způsobit nebezpečí úrazu. Před prací na jakémkoliv vybavení si uvědomte nebezpečí související s elektrickými obvody a seznamte se se standardními opatřeními pro předcházení úrazům. Podle čísla na konci každého upozornění vyhledejte jeho překlad v přeložených bezpečnostních upozorněních, která jsou přiložena k zařízení.

USCHOVEJTE TYTO POKYNY

Προειδοποίηση ΣΗΜΑΝΤΙΚΕΣ ΟΔΗΓΙΕΣ ΑΣΦΑΛΕΙΑΣ

Αυτό το προειδοποιητικό σύμβολο σημαίνει κίνδυνο. Βρίσκεστε σε κατάσταση που μπορεί να προκαλέσει τραυματισμό. Πριν εργαστείτε σε οποιοδήποτε εξοπλισμό, να έχετε υπόψη σας τους κινδύνους που σχετίζονται με τα ηλεκτρικά κυκλώματα και να έχετε εξοικειωθεί με τις συνήθεις πρακτικές για την αποφυγή ατυχημάτων. Χρησιμοποιήστε τον αριθμό δήλωσης που παρέχεται στο τέλος κάθε προειδοποίησης, για να εντοπίσετε τη μετάφρασή της στις μεταφρασμένες προειδοποιήσεις ασφαλείας που συνοδεύουν τη συσκευή.

ΦΥΛΑΞΤΕ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ

אזהרה

הוראות בטיחות חשובות

סימן אזהרה זה מסמל סכנה. אתה נמצא במצב העלול לגרום לפציעה. לפני שתעבוד עם ציוד כלשהו, עליך להיות מודע לסכנות הכרוכות במעגלים חשמליים ולהכיר את הנהלים המקובלים למניעת תאונות. השתמש במספר ההוראה המסופק בסופה של כל אזהרה כדי לאתר את התרגום באזהרות הבטיחות המתורגמות שמצורפות להתקן.

שמור הוראות אלה

Opomena

ВАЖНИ БЕЗБЕДНОСНИ НАПАТСТВИЈА

Симболот за предупредување значи опасност. Се наоѓате во ситуација што може да предизвика телесни повреди. Пред да работите со опремата, бидете свесни за ризикот што постои кај електричните кола и треба да ги познавате стандардните постапки за спречување на несреќни случаи. Искористете го бројот на изјавата што се наоѓа на крајот на секое предупредување за да го најдете неговиот период во преведените безбедносни предупредувања што се испорачани со уредот.

ЧУВАЈТЕ ГИ ОБИЕ НАПАТСТВИЈА

Ostrzeżenie

WAŻNE INSTRUKCJE DOTYCZĄCE BEZPIECZEŃSTWA

Ten symbol ostrzeżenia oznacza niebezpieczeństwo. Zachodzi sytuacja, która może powodować obrażenia ciała. Przed przystąpieniem do prac przy urządzeniach należy zapoznać się z zagrożeniami związanymi z układami elektrycznymi oraz ze standardowymi środkami zapobiegania wypadkom. Na końcu każdego ostrzeżenia podano numer, na podstawie którego można odszukać tłumaczenie tego ostrzeżenia w dołączonym do urządzenia dokumencie z tłumaczeniami ostrzeżeń.

NINIEJSZE INSTRUKCJE NALEŻY ZACHOWAĆ

Upozornenie

DÔLEŽITÉ BEZPEČNOSTNÉ POKYNY

Tento varovný symbol označuje nebezpečenstvo. Nachádzate sa v situácii s nebezpečenstvom úrazu. Pred prácou na akomkoľvek vybavení si uvedomte nebezpečenstvo súvisiace s elektrickými obvodmi a oboznámte sa so štandardnými opatreniami na predchádzanie úrazom. Podľa čísla na konci každého upozornenia vyhľadajte jeho preklad v preložených bezpečnostných upozorneniach, ktoré sú priložené k zariadeniu.

USCHOVAJTE SI TENTO NÁVOD

Send document comments to ucs-docfeedback@cisco.com

Opozorilo POMEMBNI VARNOSTNI NAPOTKI

Ta opozorilni simbol pomeni nevarnost. Nahajate se v situaciji, kjer lahko pride do telesnih poškodb. Preden pričnete z delom na napravi, se morate zavedati nevarnosti udara električnega toka, ter tudi poznati preventivne ukrepe za preprečevanje takšnih nevarnosti. Uporabite obrazložitevno številko na koncu posameznega opozorila, da najdete opis nevarnosti v priloženem varnostnem priročniku.

SHRANITE TE NAPOTKE!

警告 重要安全性指示
此警告符號代表危險，表示可能造成人身傷害。使用任何設備前，請留心電路相關危險，並熟悉避免意外的標準作法。您可以使用每項警告後的聲明編號，查詢本裝置隨附之安全性警告譯文中的翻譯。請妥善保留此指示

Installing and Removing a Blade Server Hard Drive

There are up to 2 front-accessible, hot-swappable, 2.5-inch drives per blade. An LSI 2002 RAID controller is embedded in the motherboard (a Cisco exclusive and not separately replaceable) and it supports RAID 0 and 1. You can remove blade server hard drives without removing the blade server from the chassis. All other component replacement for a blade server requires removing the blade from the chassis. Unused hard drive bays should always be covered with cover plates (N20-BBLKD) to assure proper cooling and ventilation. The chassis is omitted from illustrations here to simplify the drawing.



Caution

To prevent ESD damage, wear grounding wrist straps during these procedures and handle modules by the carrier edges only.



Note

If you ever need to move a RAID cluster from one server to another, both the old and new servers for the cluster must use the same LSI controller. For example, migration from a server with an LSI 1064E to a server with an LSI MegaRAID is not supported. Migrating a RAID cluster from a B200 M1 or M2 to this server is not supported.

Replacing an HDD or SSD with a drive of the same size, model, and manufacturer generally causes few problems with UCS Manager. If the drive being replaced was part of a RAID array we recommend using a newly ordered drive of identical size, model, and manufacturer to replace the failed drive. Cisco recommends following industry standard practice of using drives of the same capacity when creating RAID volumes. If drives of different capacities are used, the useable portion of the smallest drive will be used on all drives that make up the RAID volume. Before upgrading or adding an HDD to a running system, check the service profile in UCS Manager and make sure the new hardware configuration will be within the parameters allowed by the service profile.

Hard disk and RAID troubleshooting information is in the "Troubleshooting Server Hardware" chapter of the [Cisco UCS Troubleshooting Guide](#).

Send document comments to ucs-docfeedback@cisco.com

Table 2 shows the drives supported in this blade server.

Table 2 **Supported Hard Disk Drives (HDD)**

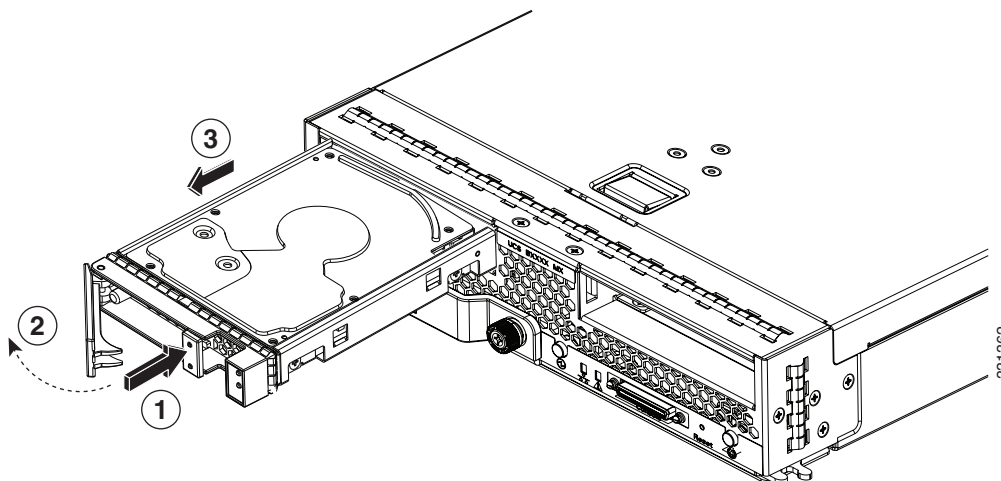
Product ID	Description
HDDs	
A03-D146GC2	146 GB 6 Gb SAS transfer rate, 15 K RPM SFF HDD/hot plug/drive sled mounted
UCS-HDD300GI2F105	300 GB 6 Gb SAS transfer rate, 15 K RPM SFF HDD/hot plug/drive sled mounted
A03-D300GA2	300 GB 6 Gb SAS transfer rate, 10K RPM SFF HDD/hot plug/drive sled mounted
A03-D600GA2	600 GB 6 Gb SAS transfer rate, 10 K RPM SFF HDD/hot plug/drive sled mounted
SSDs	
UCS-SD100G0KA2-E	100 GB Std Height 15 mm SATA SSD hot plug/drive sled mounted

Removing a Blade Server Hard Drive

To remove a hard drive from a blade server, follow these steps:

- Step 1** Push the button to release the ejector, and then pull the hard drive from its slot.

Figure 3 **Removing the Hard Drive**



- Step 2** Place the hard drive on an antistatic mat or antistatic foam if you are not immediately reinstalling it in another blade server.
- Step 3** Install a blank faceplate (UCS-HD-BBLKD) to keep dust out of the blade server if the slot will remain empty.

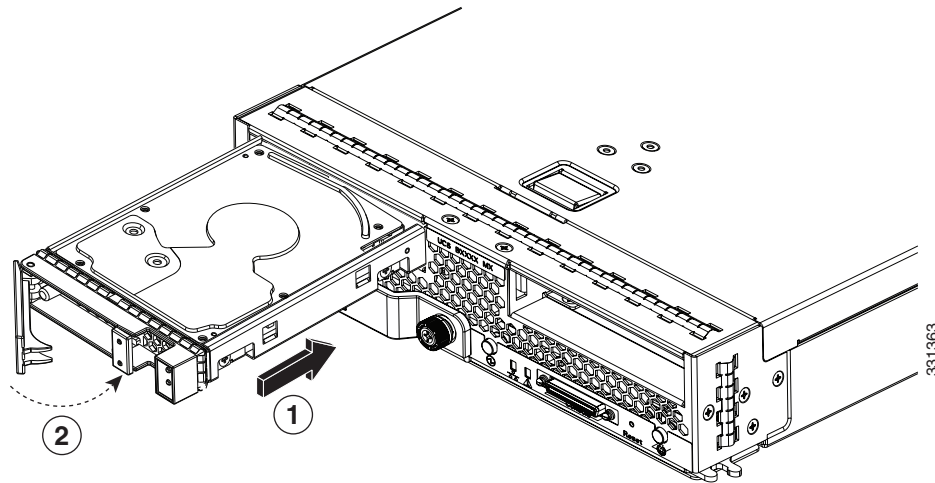
Send document comments to ucs-docfeedback@cisco.com

Installing a Blade Server Hard Drive

To install a blade server hard drive in a blade server, follow these steps:

- Step 1** Place the hard drive lever into the open position by pushing the release button (see [Figure 4](#)).

Figure 4 *Installing a Hard Drive in a Blade Server*



- Step 2** Gently slide the hard drive into the opening in the blade server until it seats into place.
- Step 3** Push the hard drive lever into the closed position.

You can use UCS Manager to format and configure RAID services. refer to the UCS Manager configuration guide for your software release for details on RAID configuration.

If you need to move a RAID cluster, refer to the [Moving a RAID Cluster](#) section of the "Troubleshooting Server Hardware" chapter of the Cisco UCS Troubleshooting Guide.

Removing and Installing a UCS B22 Blade Server

Before performing any internal operation on a blade server, you must remove it from the chassis. To prevent ESD damage, wear grounding wrist straps during these procedures and handle modules by the carrier edges only.



Caution

To prevent ESD damage, wear grounding wrist straps during these procedures and handle modules by the carrier edges only.

Send document comments to ucs-docfeedback@cisco.com

Shutting Down and Powering Off A Blade Server

The server can run in two power modes:

- Main power mode—Power is supplied to all server components and any operating system on your hard drives can run.
- Standby power mode—Power is supplied only to the service processor and the cooling fans and it is safe to power off the server from this mode.

After establishing a connection to the blade server's operating system, you can directly shut down the blade server using the operating system.

You can invoke a graceful shutdown or an emergency shutdown (hard shutdown) by using either of the following methods:

- Use the UCS Manager. See either the Cisco UCS Manager GUI Configuration Guide or the Cisco UCS Manager CLI Configuration Guide.
- Use the Power button on the server front panel. To use the Power button, follow these steps:

Step 1 Check the color of the Power Status LED.

- Green indicates that the server is in main power mode and must be shut down before it can be safely powered off. Go to Step 2.
- Amber indicates that the server is already in standby mode and can be safely powered off. Go to Step 3.

Step 2 Invoke either a graceful shutdown or a hard shutdown:



Caution

To avoid data loss or damage to your operating system, you should always invoke a graceful shutdown of the operating system.

-
- Graceful shutdown—Press and release the Power button. The operating system will perform a graceful shutdown and the server goes to standby mode, which is indicated by an amber Power Status LED.
 - Emergency shutdown—Press and hold the Power button for 4 seconds to force the main power off and immediately enter standby mode.

Step 3 If you are shutting down all blade servers in a chassis, you should now disconnect the power cords from the chassis to completely power off the servers. If you are only shutting down one server, you can skip unplugging the chassis and move to removing the server.

Removing a Cisco UCS B22 Blade Server

Figure 5 shows the positioning of a blade server in the chassis. Blade servers reside within the eight upper slots of the chassis. Using UCS Manager, decommission the server using UCS Manager before physically removing the server. To remove a blade server from the chassis, follow these steps:

Step 1 Loosen the captive screw on the front of the blade.

Step 2 Remove the blade from the chassis by pulling the ejector lever on the blade until it unseats the blade server.

Send document comments to ucs-docfeedback@cisco.com

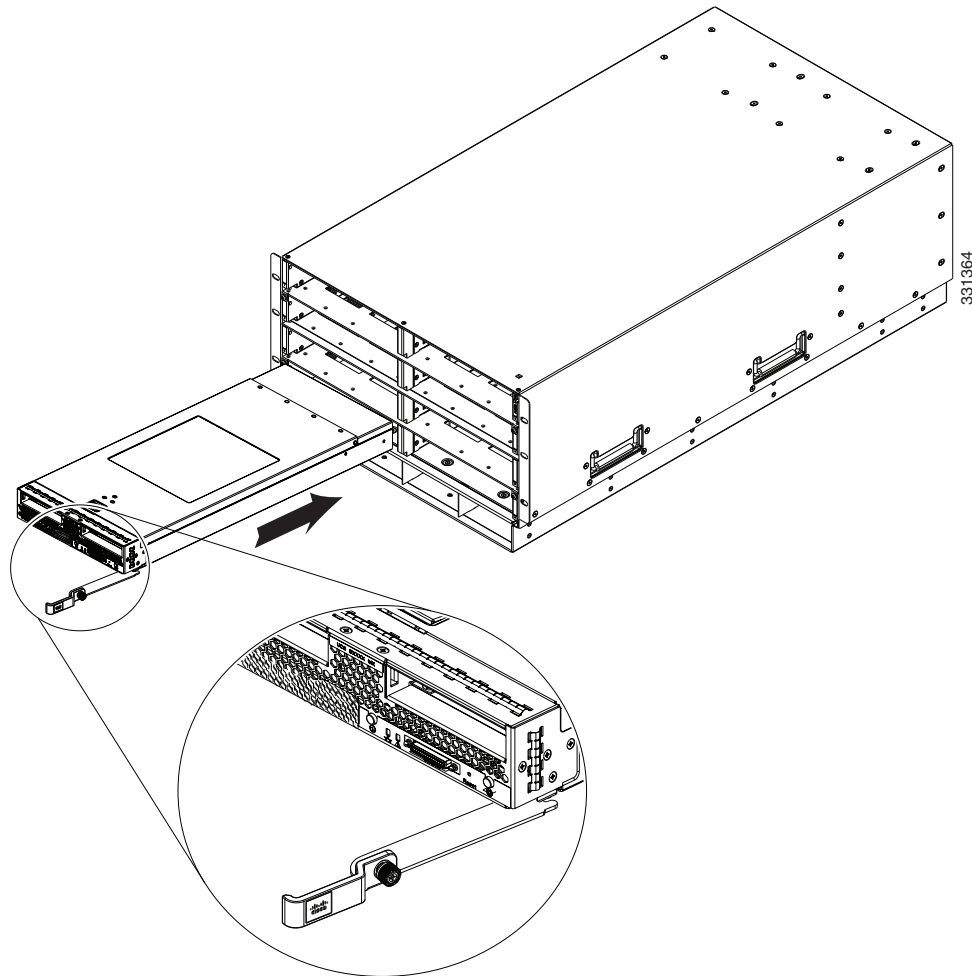
- Step 3** Slide the blade part of the way out of the chassis, and place your other hand under the blade to support its weight.
- Step 4** Once removed, place the blade on an antistatic mat or antistatic foam if you are not immediately reinstalling it into another slot.
- Step 5** If the slot is to remain empty, install a blank faceplate (N20-CBLKB1) to keep dust out of the chassis.

Installing a Cisco UCS B22 Blade Server

Figure 5 shows the positioning of a blade server in the chassis. Blade servers reside within the eight upper slots of the chassis. To install a blade server, follow these steps:

- Step 1** Grasp the front of the blade server and place your other hand under the blade to support it. See Figure 5.

Figure 5 *Positioning a Blade Server in the Chassis*



- Step 2** Open the ejector lever in the front of the blade server.
- Step 3** Gently slide the blade into the opening until you cannot push it any farther.

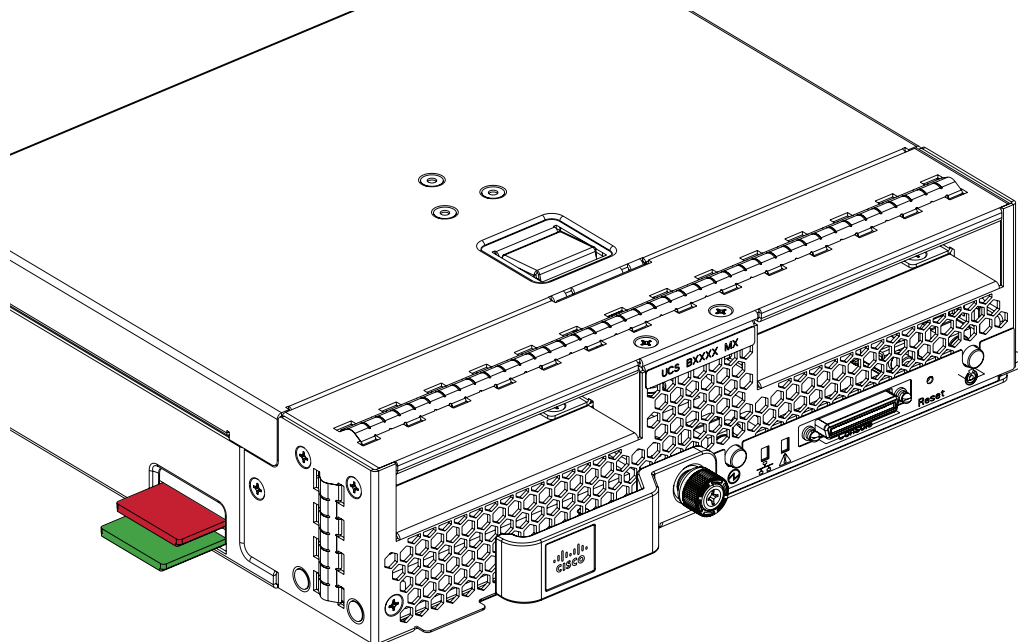
Send document comments to ucs-docfeedback@cisco.com

- Step 4** Press the ejector lever so that it catches the edge of the chassis and presses the blade server all the way in.
- Step 5** Tighten the captive screw on the front of the blade to no more than 3 in-lbs. Tightening with bare fingers only is unlikely to lead to stripped or damaged captive screws.
- Step 6** Power on the server. UCS Manager will automatically re acknowledge, reassociate, and recommission the server, provided any hardware changes are allowed by the service profile.

Secure Digital (SD) Card Access

SD card slots are provided for future usage. Their use is not supported at product release. They will require a future software update to be used.

Figure 6 *SD Card Slot Locations*



332219

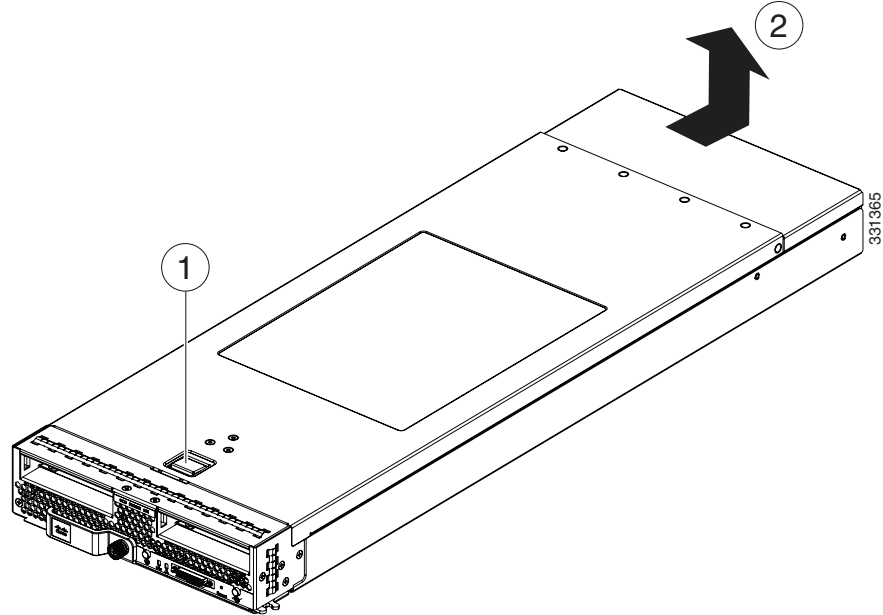
Removing a Blade Server Cover

Replacing the cover is the reverse of removing the cover. To open a blade server:

- Step 1** Press and hold the button down as shown in [Figure 7](#)
- Step 2** While holding the back end of the cover, pull the cover up and back.

Send document comments to ucs-docfeedback@cisco.com

Figure 7 **Opening a Cisco UCS B22 Blade Server**

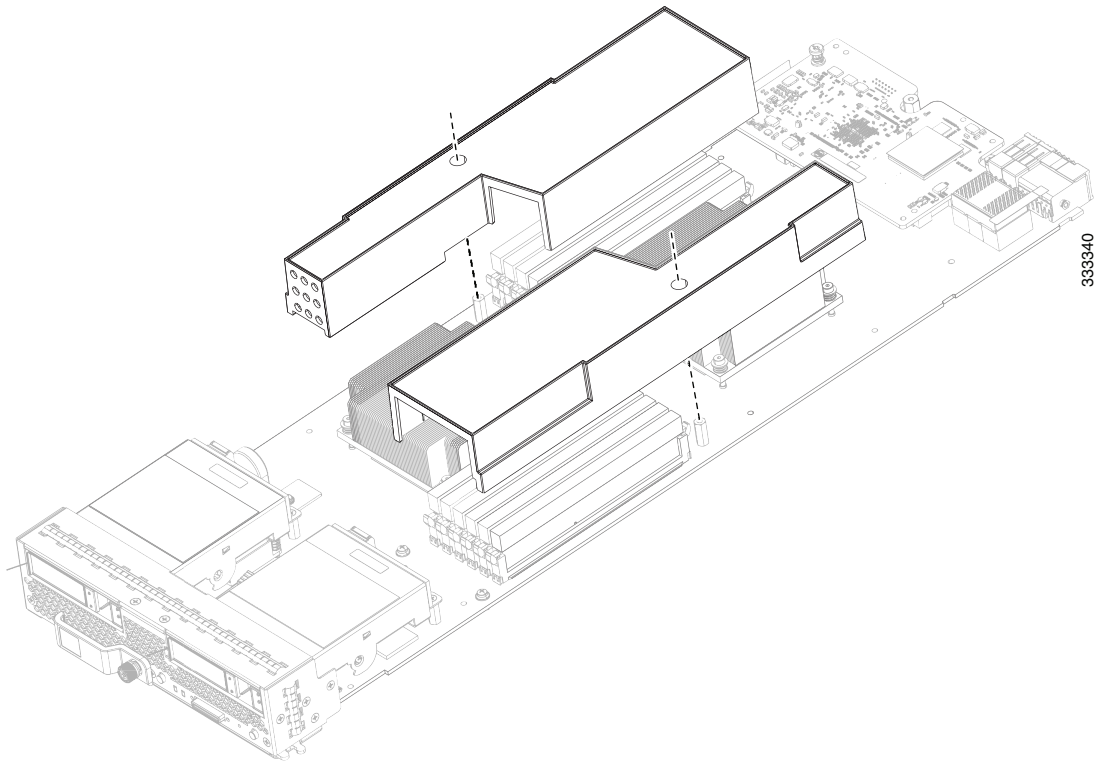


Send document comments to ucs-docfeedback@cisco.com

Air Baffles

The air baffles (UCSB-BAFF-B22-M3=) shown in [Figure 8](#) ship with this server, as they direct and improve air flow for the server components. No tools are necessary to install them, just place them over the DIMMs as shown, aligned to the standoffs.

Figure 8 *Cisco UCS B22 Air Baffles*

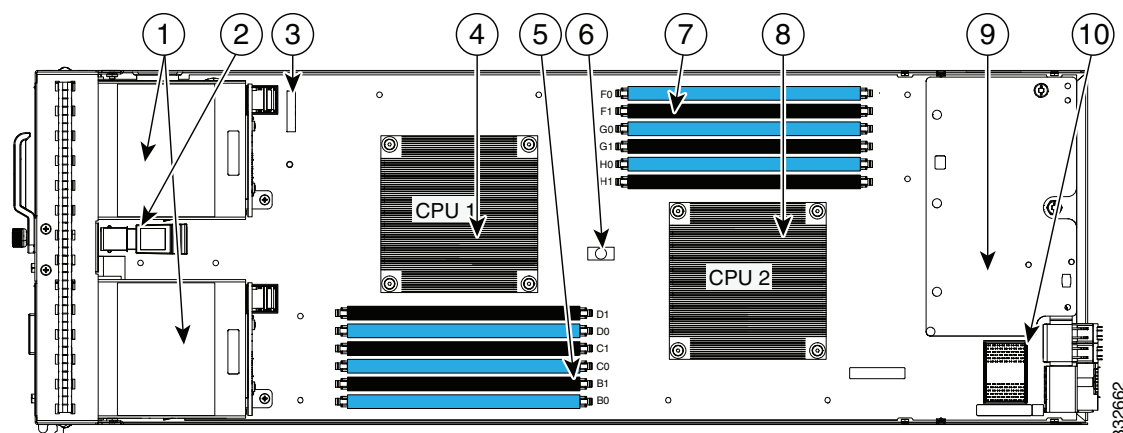


[Send document comments to ucs-docfeedback@cisco.com](mailto:ucs-docfeedback@cisco.com)

Internal Components

Figure 9 calls out the various components within the blade server.

Figure 9 *Inside View of a Blade Server*



1	Hard drive bays	2	Internal USB connector ¹
3	Battery	4	CPU 1 and heat sink
5	DIMM slots	6	Diagnostic button
7	DIMM slots	8	CPU 2 and heat sink
9	Modular LOM (shown installed)	10	Adapter card connector (Adapter not shown installed)

1. Cisco UCS-USBFLSH-S-4GB= is recommended, but if another USB drive will be used it must be no wider than .8 inches, and no more than 1.345 inches long in order to provide needed clearances to install or remove the USB drive.



Note

Use of this server may require an upgrade to the IOM in the chassis. This server only supports third generation adapter cards, which have features requiring a Cisco 2204 or 2208 IOM, and are not backward compatible with the Cisco 2104 IOM.

Diagnostics Button and LEDs

At blade start-up, POST diagnostics test the CPUs, DIMMs, HDDs and adapter cards, and any failure notifications are sent to UCS Manager. You can view these notifications in the System Error Log or in the output of the **show tech-support** command. If errors are found, an amber diagnostic LED will also light up next to the failed component. During run time, the blade BIOS, component drivers, and OS all monitor for hardware faults and will light up the amber diagnostic LED for a component if an uncorrectable error or correctable errors (such as a host ECC error) over the allowed threshold occur.

LED states are saved, and if you remove the blade from the chassis the LED values will persist for up to 10 minutes. Pressing the LED diagnostics button on the motherboard will cause the LEDs that currently show a component fault to light for up to 30 seconds for easier component identification. LED fault values are reset when the blade is reinserted into the chassis and booted, and the process begins from its start.

Send document comments to ucs-docfeedback@cisco.com

If DIMM insertion errors are detected, they may cause the blade discovery to fail and errors will be reported in the server POST information, viewable using the UCS Manager GUI or CLI. UCS blade servers require specific rules to be followed when populating DIMMs in a blade server, and the rules depend on the blade server model. Refer to the documentation for a specific blade server for those rules.

HDD status LEDs are on the front face of the HDD. Faults on the CPU, DIMMs, or adapter cards will also cause the server health LED to light solid Amber for minor error conditions or blinking Amber for critical error conditions.

Installing a Motherboard CMOS Battery

The Cisco B22 blade server supports the following battery:

Supported Components	Part Number
CR2032 battery	N20-MBLIBATT



Warning

There is danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Statement 1015

To install or replace a motherboard complementary metal-oxide semiconductor (CMOS) battery, follow these steps:

Step 1

Remove a motherboard CMOS battery:

- a. Power off the blade, remove it from the chassis, and remove the top cover as described in the [“Removing a Blade Server Cover” section on page 14](#).
- b. Press the battery socket retaining clip toward the chassis wall (see [Figure 10](#)).
- c. Lift the battery from the socket. Use needle-nose pliers to grasp the battery if there is not enough clearance for your fingers.

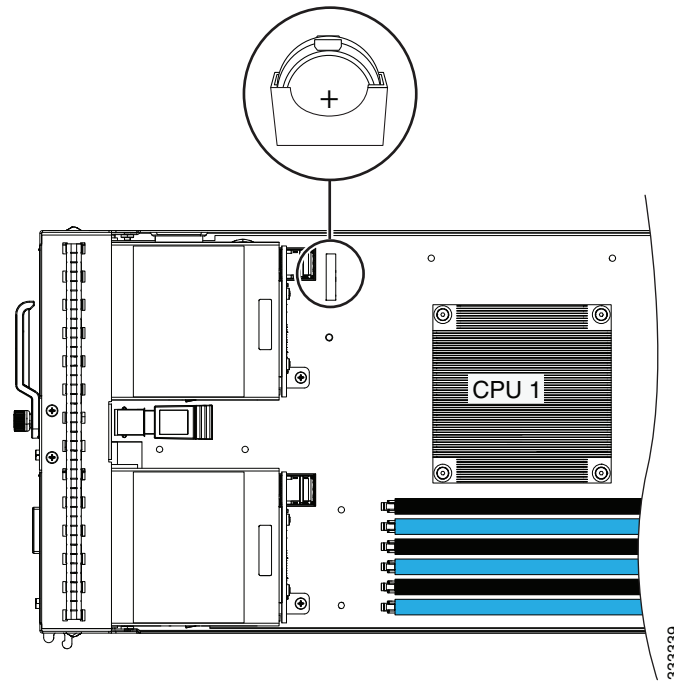
Step 2

Install a motherboard CMOS battery:

- a. Press the battery socket retaining clip toward the chassis wall.
- b. Insert the new battery into the socket with the battery's negative (–) marking toward the chassis wall. Ensure that the retaining clip clicks over the top of the battery.
- c. Replace the top cover.
- d. Replace the server in the chassis and power on the blade by pressing the **Power** button.

Send document comments to ucs-docfeedback@cisco.com

Figure 10 **Removing and Replacing a Motherboard CMOS Battery**



CPU Replacement

You can order your blade server with two CPUs, or upgrade later to a second CPU. Both CPUs must be of the same type, and memory in slots intended for the second CPU will not be recognized if the second CPU is not present (see [Memory Arrangement](#)). You may need to use these procedures to move a CPU from one server to another, or to replace a faulty CPU.

[Table 3](#) shows the available CPU options:

Table 3 **CPU Options**

Product ID	Power Draw (W)	DDR3 (MHz)	Cores	Clock Speed (GHz)	Cache (MB)
UCS-CPU-E5-2470 / Intel E5-2470	95W	1600	8	2.30	20
UCS-CPU-E5-2450 / Intel E5-2450	95W	1600	8	2.10	20
UCS-CPU-E5-2440 / Intel E5-2440	95W	1333	6	2.40	15
UCS-CPU-E5-2430L / Intel E5-2430L	60W	1333	6	2.00	15
UCS-CPU-E5-2420 / Intel E5-2420	95W	1333	6	1.90	15
UCS-CPU-E5-2403 / Intel E5-2403	80W	1066	4	1.80	10

Removing a CPU and Heat Sink

To remove a CPU and heat sink, follow these steps:

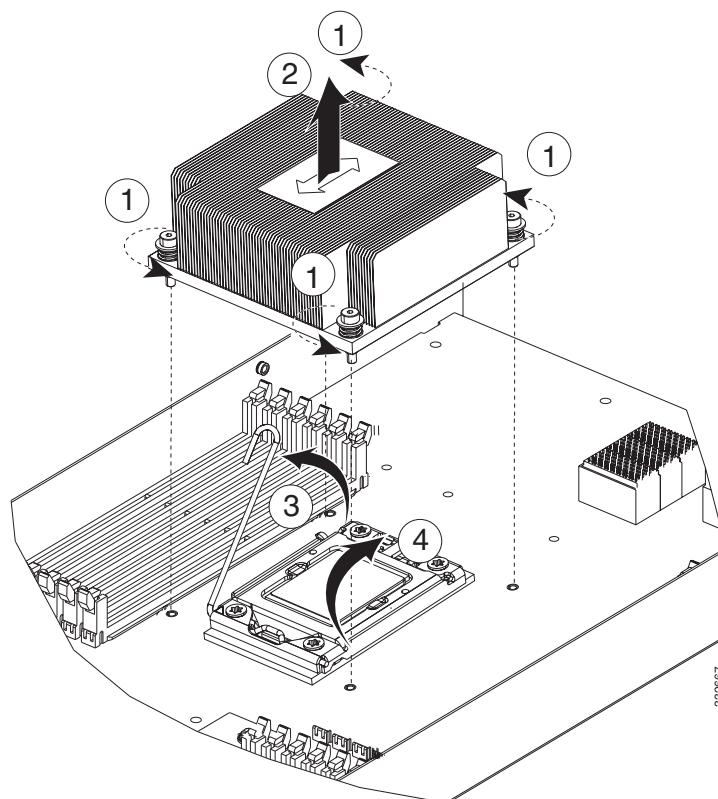
- Step 1** Unscrew the four captive screws securing the heat sink to the motherboard. See [Figure 11](#), callout 1.
- Step 2** Remove the heat sink (N20-BHTS1=). See [Figure 11](#), callout 2. Remove the old thermal compound from the bottom of the heat sink using the cleaning kit (UCSX-HSCK=) available from Cisco. Follow the instructions on the two bottles of cleaning solvent.
- Step 3** Unhook the socket latch. See [Figure 11](#), callout 3.
- Step 4** Open the socket latch. See [Figure 11](#), callout 4.
- Step 5** Remove the old CPU as follows:
 - a. Place the CPU alignment tool (UCS-CPU-EN-PNP=) on the CPU bezel aligned with the A1 arrow pointing to the CPU registration mark as shown in [Figure 13](#).



Note The CPU alignment tool is included with each CPU option kit.

- b. Press the side lever on the tool to grasp the installed CPU.
- c. Lift the tool and CPU straight up.

Figure 11 Removing The Heat Sink and Accessing the CPU Socket



Send document comments to ucs-docfeedback@cisco.com

Installing a CPU and Heat Sink

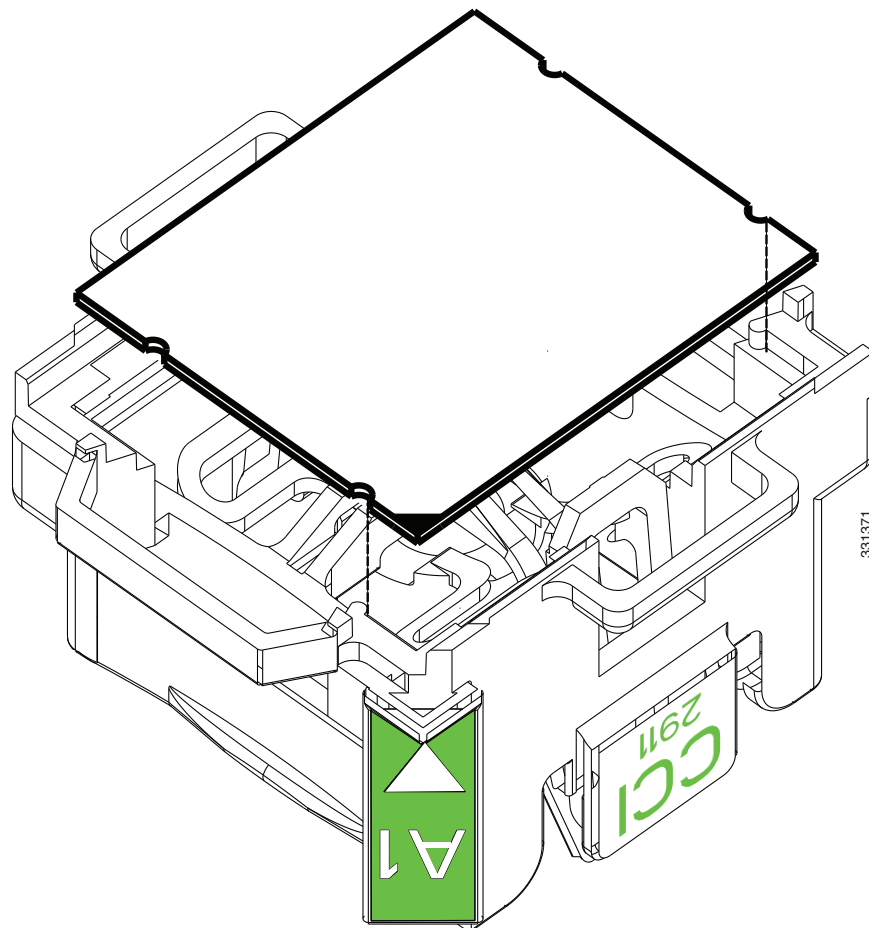
Before installing a new CPU in a server, verify the following:

- The CPU is supported for that model server.
- A BIOS is available and installed that supports the CPU/DIMM and server combination.
- The service profile for this server in UCS Manager will recognize and allow the new CPU. This is especially important if you have been using a single processor and install a second processor.

To install a CPU and heat sink, follow these steps:

-
- Step 1** Prime the alignment tool (UCS-CPU-EN-PNP=) by pressing the central button.
- Step 2** Remove the new CPU from the packaging, and place it into the alignment tool as shown in [Figure 12](#) . Only touch the CPU by the edges.

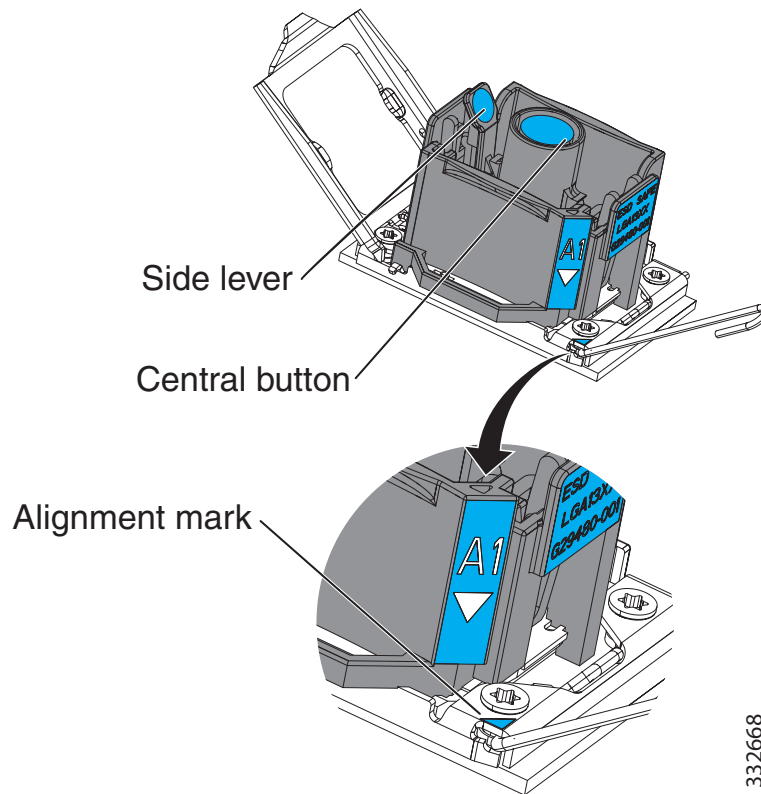
Figure 12 *Loading the Alignment Tool*



Send document comments to ucs-docfeedback@cisco.com

Step 3 Place the alignment tool with a CPU loaded on the base aligned as shown in [Figure 13](#).

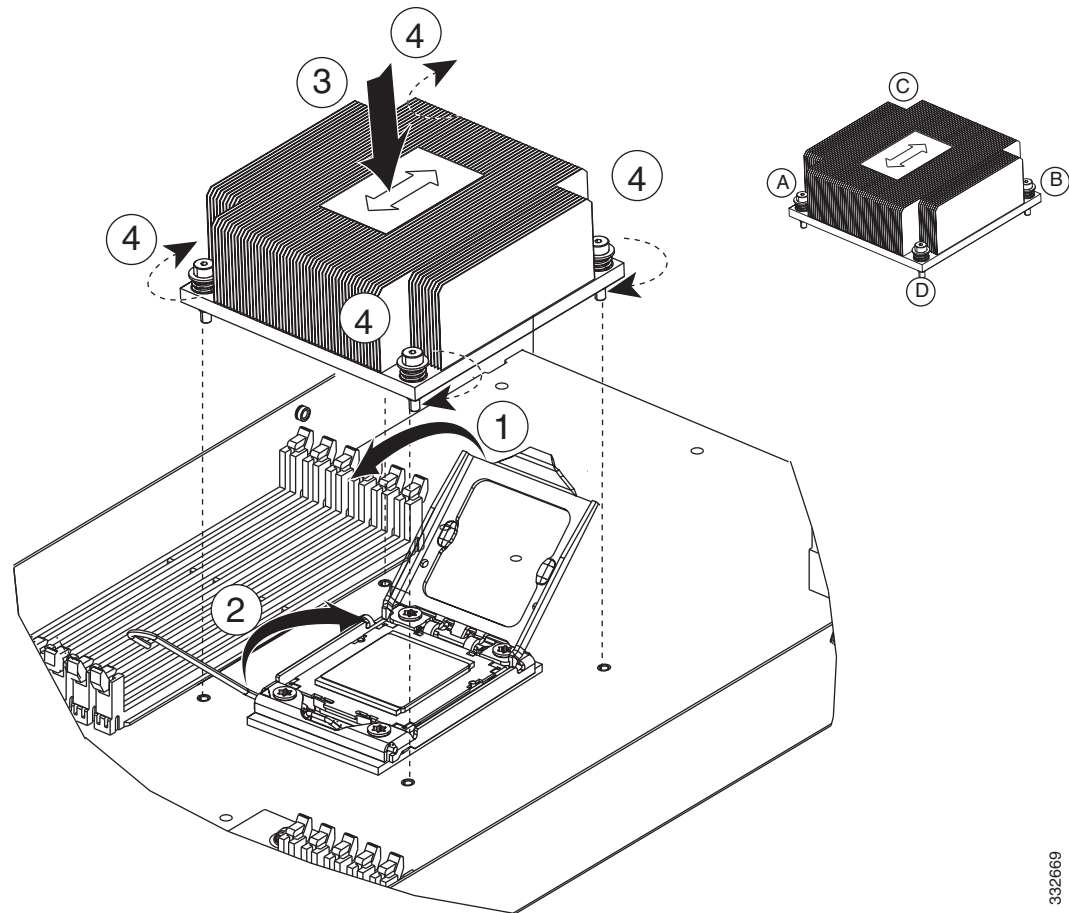
Figure 13 *Proper Alignment and CPU Insertion*



Step 4 Press the central button on the alignment tool to release the CPU into the socket.

Send document comments to ucs-docfeedback@cisco.com

Figure 14 Replacing the Heat Sink



- Step 5** Close the socket latch. See [Figure 14](#), callout 1.
- Step 6** Lock the socket latch into place with the hook. See [Figure 14](#), callout 2.
- Step 7** Using the tube of thermal compound (UCS-CPU-GREASE=) provided with replacement CPUs and servers (Dow-Corning TC-1996, Intel D54816-0 or an equivalent may also be used), add a protective film of thermal compound to the bottom of the heat sink (UCSB-HS-01-B22=) where it will contact the CPU.
- Step 8** Replace the heat sink. See [Figure 14](#), callout 3.



Caution

For proper cooling, align the arrows on the installed heat sink to point to the front and back of the blade. Make sure that the heat sink fins are aligned to run along the length of the blade server (see [Figure 14](#)).

- Step 9** Secure the heat sink to the motherboard by tightening the four captive screws. See [Figure 14](#), callout 4. Be sure to tighten in the order shown in [Figure 14](#).

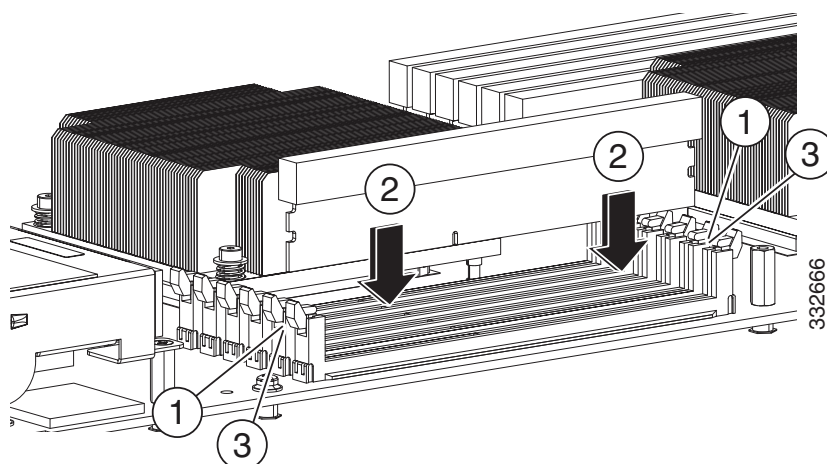
[Send document comments to ucs-docfeedback@cisco.com](mailto:ucs-docfeedback@cisco.com)

Installing Memory

To install a DIMM into the B22 blade server, follow these steps:

- Step 1** Open both DIMM connector latches.

Figure 15 *Installing DIMMs in the Blade Server*



- Step 2** Press the DIMM into its slot evenly on both ends until it clicks into place.



Note

Be sure that the notch in the DIMM aligns with the slot. If the notch is misaligned you may damage the DIMM, the slot, or both.

- Step 3** Press the DIMM connector latches inward slightly to seat them fully.

Supported DIMMs

The following table lists the type of DIMMs that Cisco makes available for use with this blade server:

Table 4 *Cisco Supported DIMMs for B22 M3 Servers*

Cisco Product ID	Description
UCS-MR-1X162RY-A	16 GB DDR3 1600 MHz RDIMM PC3-12800 dual rank/Low Voltage
UCS-MR-1X082RY-A	8 GB DDR3 1600 MHz RDIMM PC3-12800 dual rank/Low Voltage
UCS-MR-1X041RY-A	4 GB DDR3 1600 MHz RDIMM PC3-12800 single rank/1.35v/1.5v

Send document comments to ucs-docfeedback@cisco.com

Low-Voltage DIMM Considerations

The server can be ordered with low-voltage (1.35 V) DIMMs or mixed-voltage (1.35V/1.5 V) DIMMs.

There is a setting in the BIOS Setup utility that you can use to change the DDR memory mode when the server has all low-voltage DIMMs installed. To access this setting, follow these steps:

-
- | | |
|---------------|--|
| Step 1 | Enter the BIOS setup utility by pressing the F2 key when prompted during bootup. |
| Step 2 | Select the Advanced tab. |
| Step 3 | Select Low Voltage DDR Mode . |
| Step 4 | In the pop-up window, select either Power Saving Mode or Performance Mode . <ul style="list-style-type: none">• Power Saving Mode—Enables low-voltage memory operation. This setting is available only if all DIMMs installed support low-voltage operation.• Performance Mode—Disables low-voltage memory operation. If you mix low-voltage DIMMs with mixed-voltage DIMMs, the system defaults to this setting. |
| Step 5 | Press F10 to save your changes and exit the setup utility, or you can exit without saving changes by pressing Esc . |
-

Memory Arrangement

Keep in mind the following rules when adding DIMMs to this server:

- Only use Cisco-provided DIMMs.
- Mixing different speed DIMMs causes the server to set the memory speed to that of the slowest installed DIMMs.
- If memory mirroring is used, the total memory capacity is reduced by 50%.
- CPU1 and CPU2 (if used) must always be configured identically.

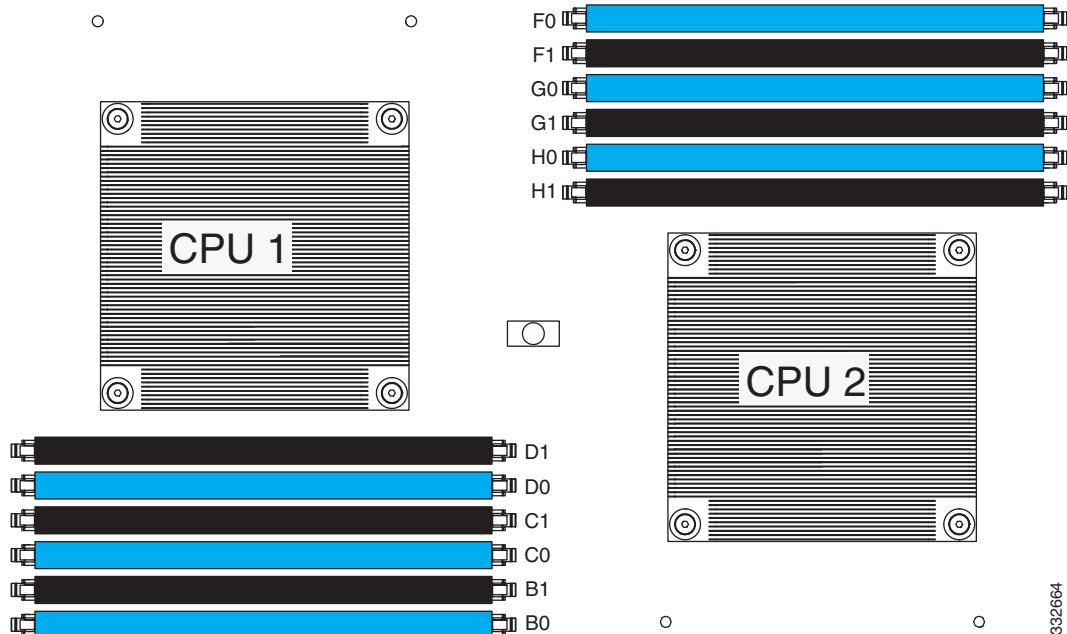
Send document comments to ucs-docfeedback@cisco.com

The blade server contains 12 DIMM slots—six for each CPU. Each set of six DIMM slots is arranged into three channels, where each channel has 2 DIMMs (see Figure 16).

Each channel is identified by a letter—B, C, D for CPU1, and F, G, H for CPU 2. Each DIMM slot is identified by a number, either 0 or 1. Note that each DIMM slot 0 is blue, while each slot 1 is black.

Figure 16 shows how DIMMs and channels are physically laid out on the blade server. The DIMM slots in the upper right are associated with CPU 2, while the DIMM slots in the lower left are associated with CPU 1.

Figure 16 **Numbering of DIMMs and Channels**



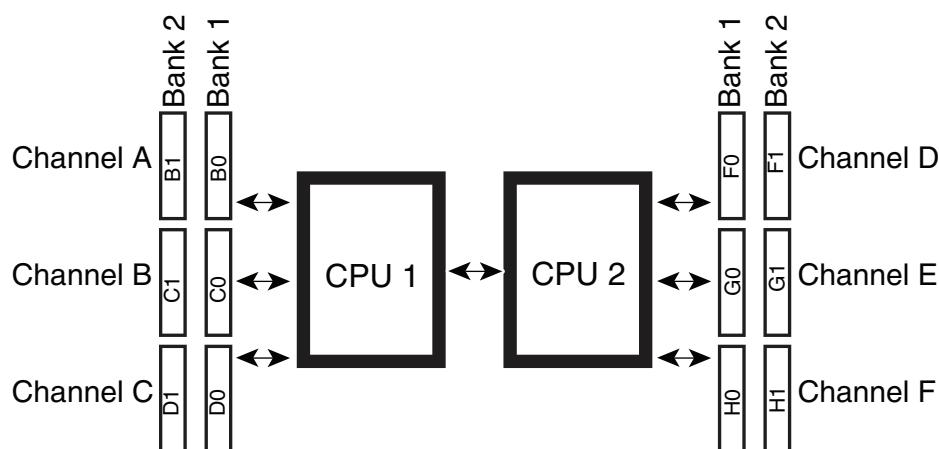
Note

The memory in the upper right cannot communicate with the memory in lower left, unless both CPUs are present.

Send document comments to ucs-docfeedback@cisco.com

Figure 17 shows a logical view of the DIMMs and Channels

Figure 17 *Logical Representation of Logical DIMMs and Channels*



333341

DIMMs can be used in the blade server in either a one DIMM per Channel (1DPC) configuration or in a two DIMMs per Channel (2DPC) configuration.

Each CPU in a Cisco UCS B22 blade server supports 3 channels of 2 memory slots each. In a 1 DPC configuration, DIMMs are in slot 0 only. In a 2 DPC configuration, DIMMs are in both slot 0 and slot 1. Table 5 shows the preferred order for installing upgrade DIMMs, and while other configurations may work if problems arise moving them to the preferred arrangement should help.

Table 5 *Preferred DIMM Population Order*

DIMMs per CPU	CPU 1 installed slots	CPU 2 installed slots
1	B0	F0
2	B0, C0	F0, G0
3	B0, C0, D0	F0, G0, H0
4	B0, C0, D0, B1	F0, G0, H0, F1
5	B0, C0, D0, B1, C1	F0, G0, H0, F1, G1
6	B0, C0, D0, B1, C1, D1	F0, G0, H0, F1, G1, H1

Memory Performance

When considering the memory configuration of your blade server, there are several things you need to consider. For example:

- DIMMs within the blade server should be configured in complete banks for optimal performance.
- Your selected CPU(s) can have some affect on performance.

Send document comments to ucs-docfeedback@cisco.com

Bandwidth and Performance

Recommendations for achieving performance of 1600 MHz on B22 M3 servers:

- Ensure that both the installed CPU and the selected DIMMs support operation at 1600 MHz. If either cannot support this, the pair will run at the highest speed of the slower of the two.
- Ensure the server is running the 2.0(2) or later BIOS version. If a BIOS upgrade is needed, do it before installing processors or memory.
- Use only Cisco certified DIMMs that support 1600 MHz speeds (see [Table 3](#)). DIMMs do not have to be identical in type or capacity, but beware of the caveats listed in the section below regarding performance degradation.
- Always set the system BIOS to operate the DIMMs in "Performance" mode in order to run at 1600 MHz.
- Fully populating 1 logical bank or 2 logical banks with DIMMs will ensure optimal memory bandwidth running at the 1600 MHz speed. If DIMMs are partially populated in 1 bank (less than 6 DIMMs) or 2 bank patterns (less than 12 but greater than 6 DIMMs) the 1600 MHz speed can be used, but the overall memory bandwidth will not be optimal.

Performance Degradation

Performance degradation can occur if the following memory configurations are used:

- Mixing DIMM sizes and densities within a channel
- Partially populating a channel
- Unevenly populating DIMMs between CPUs

Memory Mirroring and RAS

The Intel CPUs within the blade server support memory mirroring only when no more than two Channels are populated with DIMMs. If three Channels are populated with DIMMs, memory mirroring is automatically disabled. Furthermore, if memory mirroring is used, DRAM size is reduced by 50% for reasons of reliability.

If the RAS (Reliability, Availability, and Serviceability) option is required, it is available only when Channel-3 is not populated.

Installing a Modular LOM

The modular LOM is a specialized I/O adapter providing 2 x 10 Gigabit of Ethernet/FCoE connectivity to each chassis IOM. The following option is available:

Table 6 *Modular LOM Options*

Cisco Product ID	Name
UCSB-MLOM-40G-01	Cisco VIC 1240 - 40 Gb mLOM for UCS M3 Blade Servers. Plugs into the dedicated mLOM connector only. It is the only card that can be plugged into the mLOM connector.

Send document comments to ucs-docfeedback@cisco.com



Note

You must remove the adapter card to service the modular LOM.

To install a modular LOM card on the blade server, follow these steps:

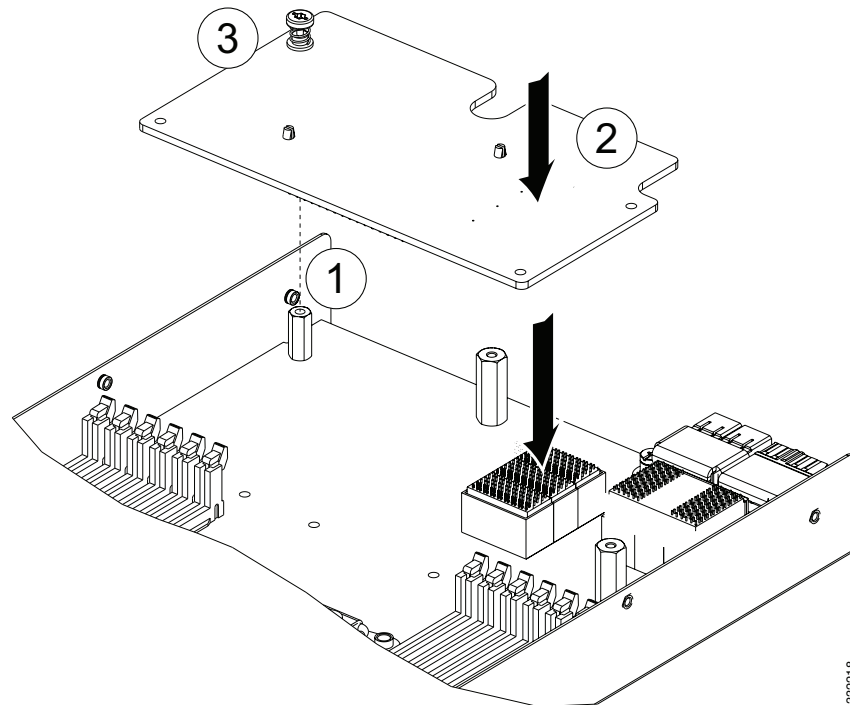
- Step 1** Position the modular LOM's board connector above the motherboard connector and align the captive screw to the standoff post on the motherboard.
- Step 2** Firmly press the modular LOM's board connector into the motherboard connector.
- Step 3** Tighten the captive screw.



Tip

Removing a modular LOM is the reverse of installing it. You may find it helpful when removing the connector from the motherboard to gently rock the board along the length of the connector until it loosens.

Figure 18 *Installing a Modular LOM*



Send document comments to ucs-docfeedback@cisco.com

Installing an Adapter Card

The network adapters and interface cards all have a shared installation process. The following options are available:

Table 7 **Adapter Card Options**

Cisco Product ID	Name
UCS-VIC-M82-8P	VIC 1280 - Dual 40Gb capable Virtual Interface Card



Note

Use of this server may require an upgrade to the IOM in the chassis. This server only supports third generation adapter cards, which have features requiring a Cisco 2204 or 2208 IOM, and are not backward compatible with the Cisco 2104 IOM.

If you are switching from one type of adapter card to another, before you physically perform the switch make sure that you have downloaded the latest device drivers and loaded them into the server's operating system. For more information, refer to the firmware management chapter of one of the UCS Manager software configuration guides.

To install an adapter card on the blade server, follow these steps:

- Step 1** Position the adapter board connector above the motherboard connector and align the two adapter captive screws to the standoff posts on the motherboard.
- Step 2** Firmly press the adapter connector into the motherboard connector.
- Step 3** Tighten the two captive screws.

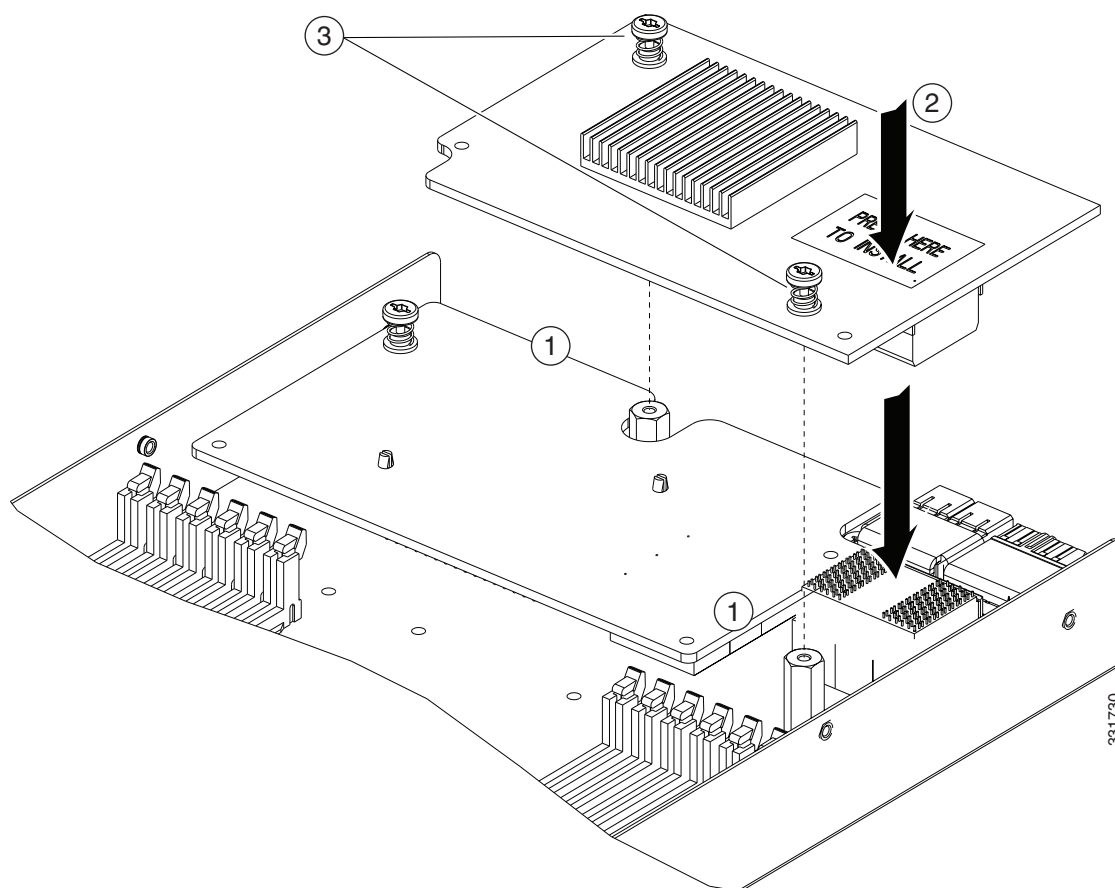


Tip

Removing an adapter card is the reverse of installing it. You may find it helpful when removing the connector from the motherboard to gently rock the board along the length of the connector until it loosens.

Send document comments to ucs-docfeedback@cisco.com

Figure 19 Installing an Adapter Card



Trusted Platform Module

The Trusted Platform Module (TPM, Cisco Product ID UCSX-TPM1-001) is a component that can securely store artifacts used to authenticate the server. These artifacts can include passwords, certificates, or encryption keys. A TPM can also be used to store platform measurements that help ensure that the platform remains trustworthy. Authentication (ensuring that the platform can prove that it is what it claims to be) and attestation (a process helping to prove that a platform is trustworthy and has not been breached) are necessary steps to ensure safer computing in all environments.

TPM is a factory-configurable option for this server. It is a requirement for the Intel Trusted Execution Technology (TXT) security feature, which must be enabled in the BIOS settings for a server equipped with a TPM. A TPM can not be added later by customers, or moved from one server to another.

To enable the TPM:

- Step 1** Enable Quiet Mode in the BIOS policy of the server's Service Profile.
- Step 2** Establish a direct connection to the server, either by connecting a keyboard, monitor, and mouse to the front panel using a KVM dongle (N20-BKVM shown in [Figure 2](#)) or by other means.
- Step 3** Reboot the server. Press **F2** during reboot to enter the BIOS setup screens.

Send document comments to ucs-docfeedback@cisco.com

- Step 4** On the Advanced tab, select **Trusted Computing** and press **Enter**.
- Step 5** Set the TPM Support option to **Enable**.
- Step 6** Press **F10** to save and exit. Allow the server to finish booting.

Server Troubleshooting

For general server troubleshooting information, refer to the "[Troubleshooting Server Hardware](#)" chapter of the *Cisco UCS Troubleshooting Guide*.

Server Configuration

UCS servers are intended to be configured and managed using UCS Manager. Refer to the [UCS Manager Configuration Guide](#) appropriate for your UCS Manager version

Server Specifications

Table 8 *Physical Specifications for the Cisco UCS B22 Blade Server*

Specification	Value
Height	1.95 inches (50 mm)
Width	8.00 inches (203 mm)
Depth	24.4 inches (620 mm)
Weight	13.5 lbs (6.1 kg) ¹

1. The system weight listed here is an estimate for a fully configured system and will vary depending on peripheral devices installed.

Related Documentation

The documentation set for the Cisco Unified Computing System environment is described in full at:

<http://www.cisco.com/go/unifiedcomputing/b-series-doc>

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Send document comments to ucs-docfeedback@cisco.com

Subscribe to the *What's New in Cisco Product Documentation* as an RSS feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service. Cisco currently supports RSS Version 2.0.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

© 2012 Cisco Systems, Inc. All rights reserved.

Send document comments to ucs-docfeedback@cisco.com